

## REMARKS

The pending final Office Action addresses and rejects claims 1-20. Independent claim 1 is amended herein. Support for the amendment can be found throughout the specification, for example, at paragraphs [0041], [0042] and [0043], and Figs. 1, 2, and 3. Applicants have also amended dependent claim 5 to correct an obvious typographical error which the Examiner has brought to Applicants' attention. No new matter has been added.

### Nonstatutory double patenting

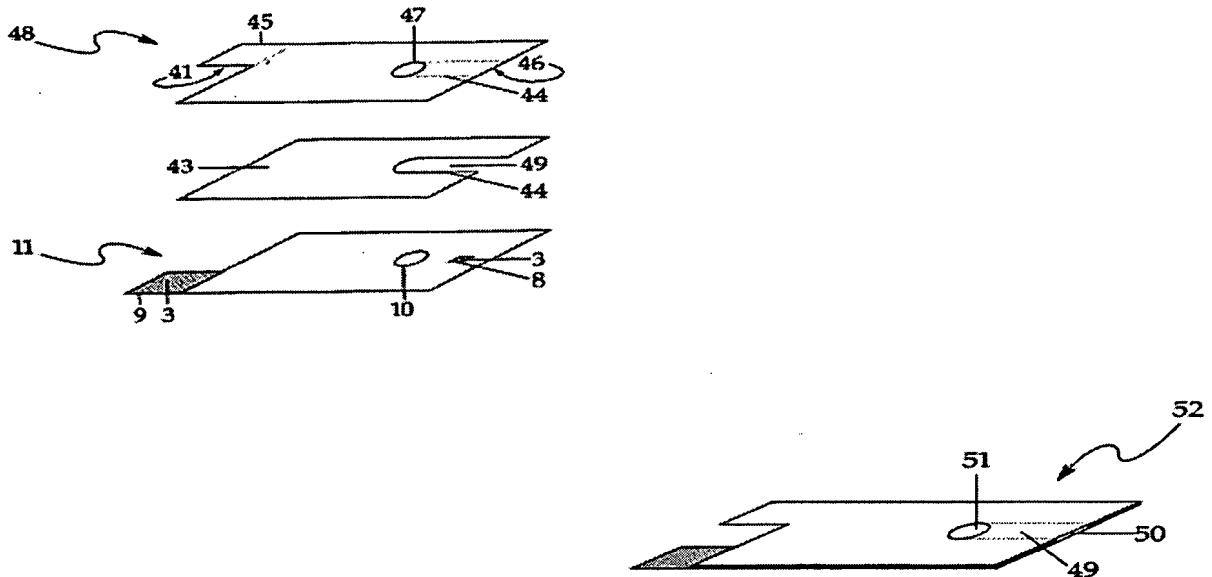
Claims 1-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 6-8, 11,12, 14-20 and 27-30 of U.S. Patent No. 6,638,415 ("415 patent").

Applicants agree to submit a Terminal Disclaimer with respect to the term of Applicants' '415 patent in the event that the Examiner maintains this rejection once patentable subject matter has been found.

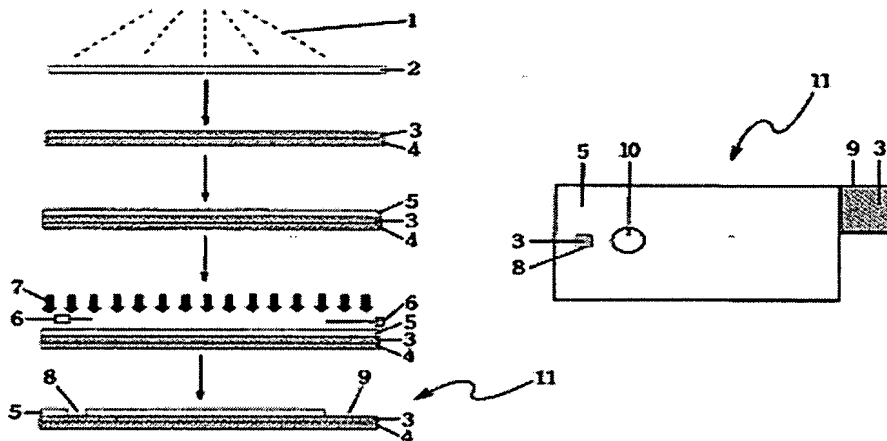
### Rejections under 35 U.S.C. §102(b)

The Examiner rejects claims 1-6, 8-12 and 18-20 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,437,999 of Diebold et al. ("Diebold"). Applicants respectfully submit that these claims are allowable in view of Applicants' amendment of independent claim 1. Independent claim 1 as amended recites a device for detecting the presence or an absence of a redox reactive analyte in an aqueous sample comprising, among other elements, an electrochemical cell having first and second electrodes mounted on opposite sides of electrically resistive material. A first aperture extends *through the electrically resistive material*, defining a sidewall of the electrochemical cell and also defining *both the first and second electrode areas on the first and second electrodes*. Diebold does not teach or even suggest Applicants' claimed device.

Diebold discloses a device that includes a reference or counter electrode element (48) spaced from a working electrode element (11) by a spacer (43). (See Col. 8, lines 15-20; FIGS. 5 and 6 are reproduced below).



Each electrode element (11, 48) is a multi-layered structure fabricated as illustrated in FIGS. 1 through 4. FIG. 1 of Diebold showing electrode element 11 is reproduced below.



Electrode element (11) includes an insulating substrate (4), a metalized layer (3), and a second insulating substrate (5). The exposed portion (8) of the metalized layer defines Diebold's working electrode area. Electrode element (48) has a similar construction including two insulating

layers with a metalized layer disposed therebetween, except that it lacks the exposed portion (8) of electrode element (11).

Diebold does not teach or even suggest an electrochemical cell comprising a sheet of electrically resistive material having an aperture wherein the aperture is mounted between the first and second electrodes and defines first and second electrode areas. Diebold's spacer 43 has cutout 44 which forms a capillary space between the reference/counter electrode and the working electrode and defines the *counter/reference area* when affixed to the counter/reference electrode element.

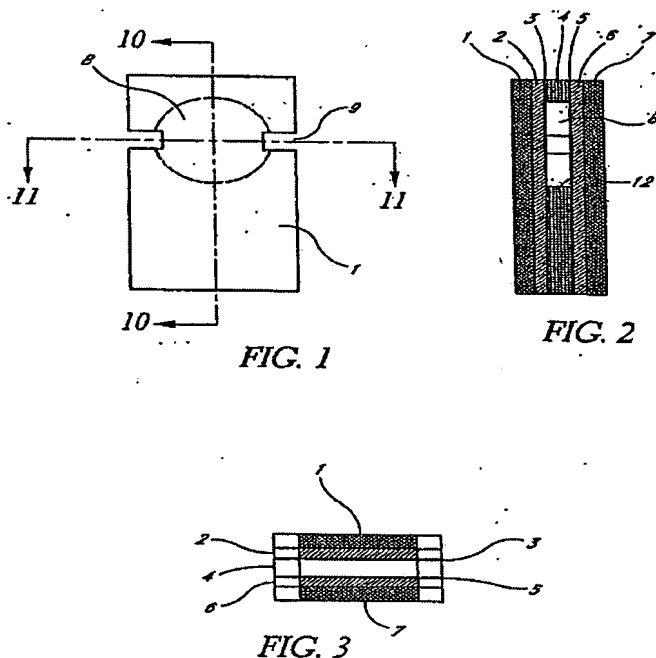
However, nowhere does Diebold teach or even suggest that spacer 43 defines *both* the counter and the working electrode areas. In fact, to the contrary, Diebold teaches that it is cutout portion 8 on insulating layer 5 *of the working electrode itself*, which defines the working electrode area, not any aperture in spacer 43. (See Diebold, for example, at col. 8, lines 26-29.) Neither cut out portion 44 in spacer 43 *nor* the opening in second insulating substrate 5 provide the functionality of applicants' first aperture: namely, a single aperture defining the electrode area on both first and second electrodes.

Instead, the working electrode area of Diebold is defined through techniques adapted from the fabrication of printed circuit boards, such as photolithography or screen printing techniques, to define the working electrode area (column 2, line 22-25). These processes are relatively complex and use many lengthy steps (column 4, lines 36-56). For example, the steps in the photolithography technique include metallizing a support layer (column 3, line 66-68, column 4 line 2-21), cleaning the metallized surface (column 4 line 39-41), coating the metallized surface with an insulating layer (column 4, line 42), exposing the coating to ultra-violet light through a photomask (column 4, line 42-46), removing the photomask with a solvent (column 4, line 48-49), developing the latent image to remove portions of the insulating layer, and curing the patterned insulating layer (column 4, line 49-52). Alternatively, in the screen printing process, the printing screen needs to be prepared, the insulating ink applied, and the ink layer cured in order to define the working electrode area.

In contrast, Applicant has discovered that the complex steps used to form the working electrode area required by Diebold are not necessary. Rather, a simple single aperture in the *spacer* accomplishes this task. Thus, when compared with Diebold, Applicant's invention removes many of the manufacturing steps and simplifies the device. Diebold regarded an aperture in the spacer as

not suitable for defining the working electrode area, otherwise there would have been no reason to execute the complicated multi-step processes described above for establishing the working electrode area.

Unlike Diebold, Applicants, teach a side wall 12 that is closed on each end by palladium metal (electrodes) 2 and 6, so that electrodes 2 and 6 substantially face each other in opposing relationship for essentially the entire length of side wall 12, and on opposite sides of aperture 8. Applicants explicitly demonstrate this relationship, for example, in Applicants' Fig. 3, an end section view of Fig. 1:



Accordingly, claim 1, and claims 2-20 which depend there from, distinguish over Diebold and represent allowable subject matter. Accordingly, Applicants request that the Examiner withdraw this rejection with respect to claims 1-20 .

**Claim Rejections- 35 U.S.C. § 103(a)**

The Examiner rejects dependent claims 7, 13 and 17 under 35 U.S.C. §103(a) over Diebold in view of U.S. Patent No. 5,120,420 of Nankai et al. ("Nankai") and also rejects dependent claims

14 and 15 under 35 U.S.C. §103(a) over Diebold in view of U.S. Patent No. 5,342,498 of Graves et al. ("Graves").

Applicants respectfully submit that dependent claims 7, 13-15 and 17 are allowable for at least the reason that they depend from allowable base claim 1. Furthermore, the deficiencies of Diebold are not remedied by either Nankai or Graves.

Nankai only teaches coplanar electrodes 4, 5 and 5' with a spacer (7) which separates a cover (9) from the electrodes. Thus, Nankai provides no motivation or teaching that the spacer (7) is suitable for use in an electrochemical cell wherein the electrodes are mounted on opposite sides of the spacer as set forth in amended claim 1. Accordingly, dependent claims 7, 13 and 17 distinguish over Diebold and Nakai, taken alone or combined. Applicants therefore respectfully request that the Examiner reconsider and withdraw this rejection.

Graves, on the other hand, is totally devoid of any teaching whatsoever of applicants' claimed invention as recited in dependent claims 14-15. The Examiner admittedly relies on Graves for teaching heating a sample. Neither Diebold nor Graves teach or even suggest a device for detecting the presence or an absence of a redox reactive analyte in an aqueous sample comprising, among other elements, an electrochemical cell having a first electrode and a second electrode mounted in opposing relationship and substantially facing each other. Accordingly, dependent claims 14-15 distinguish over Diebold and Graves, taken alone or combined. Applicants therefore respectfully request that the Examiner reconsider and withdraw this rejection as well.

### CONCLUSION

In view of the reasons set forth above, each of the presently pending claims in this application is believed to be in condition for allowance, and reconsideration is respectfully requested. The Examiner is urged to telephone the undersigned Attorney for Applicants in the event

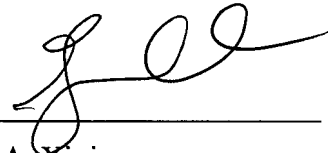
Application No.: 10/632,947  
Reply to Office Action dated July 23, 2007

Docket No.: 104978-0172  
Examiner: Kaj K. Olsen

that such communication is deemed to expedite prosecution of this matter.

Dated: October 23, 2007

Respectfully submitted,

By 

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